



Crown Corporation

B U S I N E S S P L A N S

FOR THE FISCAL YEAR 2011–2012

Halifax-Dartmouth Bridge Commission *Business Plan 2011–2012*

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Message from the Chair

It is with pleasure that I submit the business plan for the Halifax-Dartmouth Bridge Commission (operating as Halifax Harbour Bridges, or HHB) for 2011-12.

The past fiscal year was one of setting the stage for the future. For the first time since the early 1990s, HHB applied to the Nova Scotia Utility and Review Board (NSUARB) for a toll increase, an increase that is needed to help fund significant maintenance and construction projects planned for the next several years.

For example, the suspended span on the Macdonald Bridge will be replaced with on-site work beginning in 2015. This will be the largest project to take place on the bridges since the MacKay Bridge opened in 1970. At the time of our application to the NSUARB the estimated cost of this project was \$137 million (2009 dollars). In planning for this project, HHB will ensure that the MacKay Bridge has necessary maintenance complete to minimize traffic disruptions during the Macdonald Bridge suspended span re-decking project.

We were pleased with the NSUARB's decision to approve HHB's application because borrowing alone is not a prudent, fiscally responsible alternative. The NSUARB recognizes that a toll increase is necessary for the long-term maintenance of the bridges. The increase, the first for passenger vehicles since 1992, comes into effect April 1, 2011. The MACPASS toll increase will be phased in over two equal steps: the first increase as of April 1, 2011, the second as of April 1, 2012.

HHB continues to see increasing numbers of traffic across the bridges. At the end of 2010, the total number of crossings was 33.8 million, an increase of almost 10 per cent from 2005. While there was a time when this type of growth was celebrated, it now is a cause of concern because the bridges are reaching their capacity. Even the slightest incident can cause congestion to build quickly.

In 2011-12 we will continue to focus on minimizing the occurrence of incidents and clearing them quickly when they do occur. We will also continue to use technology to manage the demand by promoting our electronic tolling system, MACPASS, and other traffic management tools such as the variable message signs.

The bridges are vital transportation links and determining factors in the economic development of HRM and the region. We will continue to participate in the discussions around ensuring a sustainable transportation system for our region and investigating new strategies to ensure HHB's ability to keep traffic moving efficiently and safely over Halifax Harbour.

Tom Calkin, P.Eng., CMC
Chair, Halifax Harbour Bridges

Mission

To provide safe, efficient, and reliable passage at an appropriate cost.

Mandate

The Halifax-Dartmouth Bridge Commission (operating as Halifax Harbour Bridges or HHB) is the self-supporting entity that operates two toll bridges, the Angus L. Macdonald Bridge and the A. Murray MacKay Bridge. It was created in 1950 by a statute of the Province of Nova Scotia and now operates under a statute passed in 2005. In accordance with Section 27 of the Halifax-Dartmouth Bridge Commission Act:

27(1) With the approval of the Governor in Council, the Commission may construct, maintain and operate a transportation project across Halifax Harbour and the North West Arm, or either of them.

(2) Where the Government of the Province or the Municipality requests the Commission to investigate the sufficiency of the means of access to Halifax provided by the Bridges or the present or future need of a transportation project referred to in subsection (1), the Commission may

(a) conduct such investigation and studies as it considers advisable respecting

(i) the need or advisability of a transportation project referred to in subsection (1),

(ii) the proper location of any such transportation project,

(iii) the manner or method of financing and operating any such transportation project,

(iv) the probable cost of acquiring lands for the purposes of an additional transportation project and the cost of constructing such transportation project,

(v) any other matter related to the construction, operation or financing of a transportation project referred to in subsection (1) that the Commission considers relevant;

(b) for the purpose of making investigation and studies, engage expert or technical assistance;

(c) defray the cost of its investigations and studies out of the ordinary revenue of the Commission;

(d) make reports and recommendations to the Government of the Province and the Municipality.

(3) Any costs incurred by the Commission under this Section are expenses of operating the Bridges or a transportation project in respect of which the Commission is collecting tolls, fees, rates and other charges.



Planning Context

What follows is an overview of the structure and the factors considered in the planning process.

Organizational Structure

The Board of Commissioners for Halifax Harbour Bridges (HHB) has nine members: five are appointed by the Province of Nova Scotia, including the chair and vice chair; and four members are Regional Councillors, appointed by Halifax Regional Municipality. Within the board structure, standing committees provide governance and direction to: audit, maintenance, finance/administration/planning (FAP), and operations, communications, and MACPASS (OCM).

There are 35 permanent staff, and HHB employs approximately 40 painters and 12 gardening staff seasonally. There are also 50 members of Commissionaires Nova Scotia (CNS) who are under contract and have provided operational services to the bridges for 56 years.

Strengths

- HHB has 56 years of experience in maintaining and operating suspension bridges.
- HHB has strong expertise in electronic toll collection.

- HHB is financially self-reliant and reports to the Minister of Finance for the Province of Nova Scotia. As a self-funding user-pay operation, HHB receives no funding from the provincial government.
- HHB has ratings of: AA (low) with DBRS and AA-stable from Standard & Poor's.
- Through strategic capital investments and a comprehensive maintenance plan, the harbour bridges are two of the best maintained pieces of infrastructure in the province.
- MACPASS, HHB's electronic toll collection system, reduces toll plaza congestion and idling times to benefit the environment.

Weaknesses

- The bridges are reaching their mid-life. As they age they become more expensive to maintain.
- Based on current traffic growth projections, the bridges are approaching full capacity. Traffic continues to grow year over year. There is very little that can be done to HHB infrastructure to ease congestion.
- The potential for additional capacity on the two bridges is limited because of limited access and egress capacity. This is particularly the case on the Macdonald Bridge and the existing adjacent HRM road network.

Opportunities

- HHB continuously looks for ways to make crossing the bridges more efficient for the travelling public.
- HHB continues to take a leadership role in finding solutions to manage the demand for transportation. There are ways in which tolling can play a role, and HHB will continue to analyze the potential impact.
- HHB continues to participate in the discussion of sustainable transportation in this region and has the potential for a greater role in transportation planning.

Threats

- HHB is vulnerable to adverse economic developments that arise as a result of rising fuel costs or a downturn in the economy. Both can have a negative impact on traffic volumes on the bridges and affect revenue.
- Ensuring the safety of the public and the bridges is of the utmost priority for HHB. In 2009 HHB initiated a three-year state-of-the-art security project.
- There has been a renewed discussion at the municipal level of allocating a portion of the tolls to help fund public transportation. While HHB strongly supports the growth of public transportation in the community, it does not believe it is fair for only bridge

users to fund public transportation. The revenue generated through tolls is critical in ensuring the bridges are well maintained.

Strategic Goals

To carry out its mission, Halifax Harbour Bridges developed the following strategic goals:

- Manage the cash flow and debt to meet the future capital and maintenance requirements of HHB.
- When requested, advocate HHB's plan to address additional cross-harbour capacity and initiate planning steps to secure the transportation corridor.
- Focus on strengthening HHB's relationship with major stakeholders, including all who use the bridges.
- When requested, support and advance any potential projects with the Halifax Regional Municipality and the province of Nova Scotia.
- Communicate HHB's long-term strategic plan.
- Become an industry leader in safety, security, and operations.
- Continue a major six-year maintenance program started in 2006.
- Become a recognized leader in the pursuit of sustainable transportation demand management solutions.



- Increase the percentage of all vehicle crossings using MACPASS to 80 per cent in the long term.
- Implement a traffic awareness campaign focused on the reduction of speed on HHB facilities.

Core Business Areas

Operational Safety and Emergency Preparedness

Objective: To ensure the safety and security of the travelling public and employees through ongoing reviews and implementation of HHB's policies, procedures, and initiatives.

The two harbour bridges are among the safest and best maintained pieces of infrastructure in Nova Scotia. Safety measures include a wind detection system, mobile speed radar, ice detection sensors, around the clock bridge security and traffic enforcement, cameras, emergency telephones on the Macdonald Bridge, variable message signs, and separate sidewalk and bicycle lane on the Macdonald Bridge.

Focus for 2011-12

- Enhance the use of variable message signs (VMS) and speed indicator signs in key decision points on the approaches to the bridges. Explore opportunities for public safety messaging aimed at the root causes of traffic collisions.
- Improve operational response through a new operational centre that uses existing and new technology.

Maintenance

Objective: To ensure the bridges are well maintained and structurally sound.

Each year the two harbour bridges receive a rigorous inspection to identify maintenance requirements and to ensure that items from previous inspections are being addressed properly. The annual inspection determines the course of action for the current year. The annual inspection report forms the basis of the three-year maintenance plan.

The major projects completed in 2010 included replacement of expansion joints at the MacKay Bridge main towers and adjacent deck panels, followed by the resurfacing of the MacKay Bridge suspended spans. A concrete median barrier (Jersey barrier) on the Dartmouth approach road to the MacKay Bridge was also installed. As part of the federal infrastructure development and economic stimulus package, the federal government provided funding of \$3.6 million to match the \$3.6 million from borrowing and toll revenues for this project.

A micro-surfacing surface treatment was applied to the Barrington on-ramp to the Macdonald Bridge.

The main cables of the Macdonald Bridge went through an extensive inspection and were found to be in excellent condition and won't need to be replaced as part of

the Macdonald Bridge suspended span re-decking project.

Focus for 2011–2012

The focus in 2011–2012 will be to replace the traction rods and suspender ropes at mid-span of the MacKay Bridge. The main cables will be inspected at the same time, since the cable wrapping must be disturbed for the traction rod work. A monitoring program will be conducted to provide a better assessment of the MacKay Bridge suspended spans deck life. It is also planned to add wind vibration dampers to the cable bent struts and conduct concrete repairs on one of the cable anchorages at the MacKay Bridge. On the Macdonald Bridge the cable anchorages will be waterproofed.

The extensive maintenance at the MacKay Bridge is part of the longer-term plan to ensure that major maintenance projects are complete in preparation for replacement of the suspended spans on the Macdonald Bridge between 2014 and 2016. This is part of HHB's commitment to avoid traffic congestion by ensuring that both bridges are not undergoing significant projects at the same time.

Efficient Transportation

Objective: Maintain convenient and reliable passage by working with stakeholders to identify improvements, which will assist future capacity requirements.

Objective: Continue to actively market electronic toll collection (MACPASS) to decrease traffic congestion and accommodate future traffic growth.

In early 2010 HHB saw the successful implementation of a new product in partnership with the Halifax Stanfield International Airport. MACPASS^{plus} allows MACPASS customers to pay for short- and long-term parking in the parkade at the airport. This service provides drivers the convenience of reduced wait times and cashless parking. HHB looks to build on the success of the MACPASS^{plus} program with other regional mobility operations.

HHB commissioned a study to investigate the impact that peak-period tolling (also known as time-of-day tolling or congestion pricing) and one-way tolling might have on reducing congestion. Results indicate that given current conditions, peak-period tolling and one-way tolling on the harbour bridges would not noticeably assist in reducing traffic congestion at this time. In addition, those who would choose alternative routes would find those routes congested.

Focus for 2011–12

For the next fiscal year efforts will be made to gain further understanding of how to best implement future tolling efficiencies and focus on reducing costs by utilizing technology.



Priorities for 2011–2012

HHB's priorities in support of the core business areas for 2011–2012 are as follows.

Safety and Emergency Preparedness

- Enhance the use of variable message signs (VMS) and speed indicator signs in key decision points on the approaches to the bridges. Explore opportunities for public safety messaging aimed at the root causes of traffic collisions.
- Improve operational response through a new operational centre that uses existing and new technology.
- Implement a traffic awareness campaign focused on the reduction of speed on HHB facilities and increased attention to safe driving habits.

Maintenance

MacKay Bridge

- Replace the traction rods and suspender ropes at mid span of the MacKay Bridge.
- Add wind vibration dampers to the cable bent struts and conduct concrete repairs on one cable anchorage.

Macdonald Bridge

- Waterproof cable anchorages.

- Complete engineering and design work for the re-decking of the suspended spans of the Macdonald Bridge.

Efficient Transportation

- Research ways to best implement future toll efficiencies.
- HHB will continue to look for ways to make crossing the bridges more efficient for the travelling public.

Safety

- Develop a world-class safety program.
- Strive for a workplace with no workplace injuries.

Communications

- Continue to build on improving relationships with stakeholders.
- Implement programs based on customer needs.

Environmental

- HHB will continue to reduce its carbon footprint and engage staff and the public in environmental decision making to achieve their support.

Budget Context

	Estimate 2010-11 (\$ 000)	Forecast 2010-11 (\$ 000)	Estimate 2011-12 (\$ 000)
Revenue			
Toll revenue	23,782	24,438	29,394
Other rate charges	144	152	157
Investment and sundry income:			
Trust fund investments	257	172	169
Other	266	1,566	350
Investment income	—	—	—
Contributed revenue	3,200	—	—
Contributed capital contribution	60	65	65
Token reserves taken into income	—	—	—
Total revenue	27,709	26,393	30,135
Expenses			
Operating	6,468	6,274	6,121
Maintenance	3,921	3,378	3,923
Amortization	7,693	7,091	7,499
Debt servicing	2,842	2,829	2,729
Loss (profit) on disposal of property, plant, and equipment	200	160	100
Total expenses	21,124	19,732	20,372
Net operating income	6,586	6,661	9,763



Future Capital Requirements

Year	Amount (\$ adjusted for inflation)
2011-12	14,500,000
2012-13	7,000,000
2013-14	17,100,000
2014-15	47,600,000*
2015-16	48,300,000*
2016-17	49,500,000*
2017-18	19,300,000
2018-19	3,600,000
2019-20	7,600,000
2020-21	2,600,000
2021-22	2,700,000
2022-23	2,700,000
2023-24	177,300,000**
2024-25	181,700,000**
2025-26	2,900,000
Total capital requirement 2011 to 2026	584,400,000

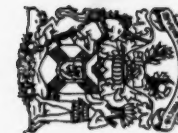
* Macdonald Bridge suspended spans re-decking.

** MacKay Bridge suspended spans re-decking.

Outcomes and Performance Measures

Core Business Area 1 *Safety and emergency preparedness*

Outcome	Measure	Baseline Data	Target	Trends	Strategies to Achieve Target
Minimize the total number of motor vehicle collisions	<i>Motor Vehicle Act (MVA) statistics</i>	Baseline of 1.2 accidents per 100,000 vehicle kilometres traveled (VKT)	2% reduction in accidents over 2010	38.8 collisions on both bridges in 2009 36.8 collisions on both bridges in 2010	Reduce motorist average speed rates, by providing real-time public safety messaging Expand number of public safety messages utilized by VMS
Develop new operations centre(s)	Enhance coordination of situational awareness for all HHB facilities	Improved operational response times over previous years Proactive incident management strategies based on real-time information	A significant increase in vigilance while being proactive with operational response	Not applicable – new strategy	Reconfigure existing control centre(s) Install new technologies Train staff in new protocols and procedures for centre(s)
Develop and implement a traffic awareness campaign	Annual MVA statistics and reduction in average speed statistics	Baseline of 1.2 accidents per 100,000 vehicle kilometres traveled (VKT) 2010 average speeds	Maintain or reduce 2010 VKT statistics Average speeds to fall in speed: • Macdonald: 50 km/h • MacKay: 70 km/h	Speeds (km/h): • MacKay: 2009: 71.7 2010: 71.4 • Macdonald: 2009: 53.9 2010: 58.0	Develop case for safe driving campaign Design public safety messaging format Acquire appropriate budget funding to support initiative


Core Business Area 2 Maintenance

Outcome	Measure	Baseline Data	Target	Trends	Strategies to Achieve Target
Mackay Bridge: replace traction rods and suspender ropes at mid span	Final inspection report	<p>Traction rods have not functioned properly and lack appropriate load transfer ability</p> <p>Suspender ropes show minor wire breaks due to excessive movement related to traction rods performance and aggressive environment</p>	2011: 100% completion	N/A	<p>Narrow one lane</p> <p>Restrict work to on one main cable at a time</p> <p>Conduct work in summer months for coating application</p> <p>Plan two overnight bridge closures for traction rod replacement plus several overnight and weekend lane closures</p> <p>Tender March 2011 due to long-delivery items</p>
Mackay Bridge: suspended spans deck monitoring and test program	Final report	<p>Long-range plan anticipates deck replacement in 2022-23</p> <p>Cracks found and repaired in 2009</p> <p>Deteriorated deck with cracks replaced adjacent main towers in 2010</p> <p>Fatigue samples taken from deck panels removed from main towers in 2010</p>	<p>2011: 50%</p> <p>2012: 100% completion</p>		<p>Ensure that strain-gauge monitoring and fatigue laboratory testing are complementary</p> <p>Determine realistic load or deflection criteria</p>
Mackay Bridge: main cable inspection	Final inspection report	<p>Main cables viewed in 1990s on backstay side of cable bents – corrosion noted</p> <p>Inspect at mid span and backstay side of cable bent</p>	2011: 100% completion	N/A	<p>Conduct at same time as traction rod work to take advantage of lane and bridge closures</p>
Mackay Bridge: install wind vibration dampers on cable bent struts	Final inspection report	<p>Struts installed in 2010 observed to vibrate in wind</p> <p>Temporary dampeners installed September 2010</p>	2011: 100% completion	N/A	<p>Tender March 2011 due to long delivery of dampeners</p> <p>Conduct during summer months for coating repairs</p>

Core Business Area 2 *Maintenance*

Outcome	Measure	Baseline Data	Target	Trends	Strategies to Achieve Target
Mackay Bridge: anchorage concrete repairs	Final inspection report	Phase over two years – one anchorage each year	2011: 50% 2012: 100% completion	N/A	Comply with noise by-laws Carry out when cold weather concrete protection not required
Macdonald Bridge: anchorage waterproofing	Final inspection report	Previous materials removed in 2010 to allow concrete inspection	2011: 100% completion	N/A	Carry out during summer months during optimum weather conditions

Core Business Area 3 *Efficient transportation*

Outcome	Measure	Baseline Data	Target	Trends	Strategies to Achieve Target
Increased efficiency of traffic flow through increasing throughput & reducing congestion	Percentage of MACPASS usage	2001: 32.35%	2011: 72%	2001: 32.35% 2002: 39.07% 2003: 43.33% 2004: 47.13% 2005: 49.28% 2006: 52.06% 2007: 55.00% 2008: 65.77% 2009: 68.72% 2010: 70.0%	Increase distribution Provide excellence in customer service

